CHACHKO, A. G.

SO: JPRS 54711
01 OCT 1971

UDC 681.3.007

PROCEDURE FOR ANALYSIS OF DATA REPRESENTATION SYSTEMS FOR THE MAN-OPERATOR CONTROLLING A COMPLEX AUTOMATED OBJECT

[Article by Candidate of Technical Sciences A. G. Chachko; Moscow, Pribory i Sistemy Upravleniya, Russian, No 10, 1970, p 12-14]

When developing an automated control system, one of the most important problems is selection of the representation system which combines well with the control object and the automatic devices and is also convenient for the man-operator. The methods of analyzing the representation systems have been inadequately developed at this time, and they are of a partial nature as a result of which the design of representation systems is frequently based only on engineering intuition and experience [1].

The procedure proposed by us for such analysis is discussed briefly below. In view of the complexity and broadness of the problem, only logical and mathematical analysis schemes are presented. A detailed description of the individual steps in the analysis can be found in the papers by the author listed in the bibliography.

Analysis Sequence

The analysis sequence is presented in Figure 1 to which we shall refer many times hereafter.

Analysis of the representation system is still not subject to complete formalization. Therefore, the steps of the analysis are divided into three types: unformalized (heuristic), experimental and analytical.

The initial (unformalized) stage of analysis (steps 1, 2 and 3) consists in considering the effect of the structure of the control system on the representation system. In this stage the flow chart and the operating conditions of the object are investigated. The results of block synthesis of the control system are used, and possible means of representing the data are selected.

The preliminary (half-formalized) stage of analysis (figure 1, position 1) comprises designation of the monitoring and control points (step 4), selection of several versions of the structure of the monitoring and control

USSR UDC 542.91+547.466+547.964.4

AGADZHANYAN, Ts. Ye., AMBOYAN, K. L., GARIBDZHANYAN, B. T., and CHACHOYAN, A. A., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Acad. Sc. ArmenianSSR, (Yerevan)

"Biologically Active Polymers. I. Synthesis of Polypeptides Containing Cytotoxic Groups"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 11, 1972, pp 956-962

Abstract: Polypeptides of glycine, sarcosine, DL-norleucine, DL-leucine, L-phenylalanine, L- and D-valine were synthesized, connected to the ethylenimine, N,N-bis-(2-chloroethyl)-p-phenylenediamine or to the ethyl ester of sarcolysine by an amide linkage. Derivatives of polypeptides were obtained in anhydrous dioxane by polymerization of N-carboxy anhydrides of the corresponding aminoacids in presence of the above mentioned amines. The structure of the polymers has been confirmed by means of infrared and ultraviolet spectra. It was shown that some of the products exhibited antitumor activity on Walker carcinosarcoma and Ehrich ascitis tumor.

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UDC 541.63:543.422.25:547.879

SAMITOV, Yu. Yu., TAZEYEVA, N. K., CHADAYEVA, N. A., and KAMAY, G. Kh. (deceased), Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR, Kazan'

"The Configuration and Conformation of Substituted 1,3,2-Dioxaarsenanes"

Riga, Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 73, pp 457-463

Abstract: On the basis of paramagnetic resonance spectra of high resolution, the configuration and conformation of ten 1,3,2-dioxaarsenanes substituted in positions 2,4, and 5 were studied. The data obtained indicated inversion of the screening constants of protons in positions 4,6, and 5 and of methyls in position 5, an axial location of the bonds As-Cl and As-OR, an equatorial location of 4-Me, and a chair conformation of the six-membered heterocycle. The anisotropies of diamagnetic susceptibility ($\Delta\chi_{As-O} = 4.67 \times 10^{-6}$ and $\Delta\chi_{As-Cl} = -5.13 \times 10^{-6}$ $cm^3 \cdot mole^{-1}$ in the dipole approximation; $\Delta\chi_{As-O} = 0.9 \times 10^{-6}$ and $\Delta\chi_{As-Cl} = -6.8 \times 10^{-6}$ $cm^3 \cdot mole^{-1}$ in the non-dipole approximation) were estimated for the first time. By applying the R-factor method, a cyclic torsion angle $\psi = 58^{\circ}$ was found for 2-chloro-1,3,2-dioxaarsenane. A study of the specific influence on the position of the resonance lines of the

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SAMITOV, Yu. Yu., et al., Khimiya Geterotsiklicheskikh Soyedineniy, No 4, Apr 73, pp 457-463

aromatic solvent on transition from CCl_4 to PhH confirmed the conclusions made on the conformation of the ring and of the substituents in it.

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UDC 542.91 + 547.26'119

USSR

CHADAYEVA, N. A., MAMAKOV, K. A., and KAMAY, G. Kh. (deceased)

"Some Properties of the Derivatives of Oxathiaarsolane"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 821-824

Abstract: 2-Phenyl-1,3,2-oxathiaarsolane (I) reacts exothermically with ethylenethioglycol forming di(β-hydroxyethyl)phenyldithioarsonite (II). In an analogous reaction 1'-hydroxy-2'-thiobis(1,3,2-oxathiaarsolanyl)-ethane with ethylenethioglycol yields tri(β-hydroxyethyl)trithioarsenite; 2-phenyl-1,3,2-oxathiaarsolane and thiophenol give (II) and diphenyl ester of phenyldithioarsonous acid. Bromination of (I) in carbon tetrachloride yields phenyldibromoarsine, reaction of acetyl bromide with (I) produces phenyldibromoarsine and β-acetoethyl ester of thioacetic acid and magnesium organic compounds reacted with (I) give tertiary arsines. Water hydrolyzes (I) to As_2O_3.

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USSR

UDC 542.91 + 541.2 + 547.242

CHADAYEVA, N. A., MAMAKOV, K. A., SHAGIDULLIN, R. R., and KAMAY, G. Kh. (deceased)

"Synthesis and Some Properties of β-Hydroxyethyl Esters of Trivalent Arsenic Thioacids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 4, Apr 73, pp 824-834

Abstract: New β-hydroxyethyl esters of trivalent arsenic thioacids have been synthesized by the reaction of thiol exchange and exchange of the alkoxy group by the thiol group. The reaction appears to go by the mechanism analogous to transesterification of trivalent phosphorus esters. The products are dense colorless liquids soluble in organic solvents, insoluble in water. They can be distilled in vacuum without decomposition, are stable in air to oxygen but are attacked by strong oxidizers. With acyl halides these compounds form arsenic halides and β-acetoethyl esters of thioacetic acid. Prolonged heating of β-hydroxyethyl esters of alkyl(aryl)thioarsonous and thioarsonic acids yields respective 1,3,2-oxathiaarsolane derivatives. Physical properties and IR spectra of the synthesized materials have been determined.

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USSR

UDC 539.193:547.242

KONDRAT'YEVA, O. I., TROITSKAYA, A. D., CHADAYEVA, N. A., CHUYKOVA, A. I., USACHEVA, G. M., and IVANTSOV, A. Ye., Kazan' Chemical Technological Institute Imeni S. M. Kirov and Kazan' Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Investigation of the Complex Compounds of Chromium (I) With Organic Derivatives of Arsenic by the EPR Method"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 2087-2088

Abstract: Eight new complex compounds of chromium (I) with organic derivatives of arsenic (III) were obtained in acetone solution. The reaction occurred instantaneously at room temperature with a slight excess of the arsenic component. It was found that changes even in remote areas surrounding arsenic had a definite effect on the characteristics of the chromium(I)-arsenic(III) bond, which could be due to a possible decrease of the participation of S electrons in formation of s_p^n-hybrid orbitals.

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CHADAYEVA, N. A., MAMAKOV, K. A., and KAMAY, G. KH.

"Synthetic Method for Trialkoxysilylalkyl Esters of Trivalent Arsenic Thioacids"

USSR Author's Certificate No 368276, filed 22 Mar 71, published 73 (from Khimiya, No 20, Oct 73, Abstract No 20N514P)

Translation: Silicon-organic derivatives of trivalent As, exhibiting fungicidal properties, of the general formula $R_nAs[S(CH_2)_mSi(OR')_3]_{3-n}$ (I) (R = alkyl, aryl, heterocycle; R' = Me, Et; n = 0.1,2; m = 2.3) are obtained by reacting alkyl esters of As^{3+} acids with trialkoxysilylalkylmercaptane under application of heat. Example. To 4 g $EtAs(OEt)_2$ 9.25 g $HS(CH_2)_2Si(OEt)_3$ is added with stirring, the mixture is brought to boiling point, EtOH formed is removed, the residue is kept in vacuum over a water bath. Quantitative yield of I -- 11.3 g -- is obt ed (R=Et; R'= Et; m=2, n=1). Analogously other I were obtained (Rm R', m, ield in %, n_D^{20}, d_4^{20}, being reported): -, Et, 2, 0, 99.9, 1.4997, 1.1898; Ph, Me, 2, 1, 99.7, 1.5414, 1.2682; Ph, Et, 2, 1, 99.9, 1,5327, 1.2312; R_n= EtPh, Me, 2, 2, 99.6, 1.5470, 1.2453, R_n= EtPh, Et, 2, 2, 99.9, 1.5450, 1.2354. I is used in preparing covers protecting optical parts from microbiological growth.
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USSR UDC 542.91:547.1'119

CHADAYEVA, N. A., KAMAI, G. KH (Deceased), and MAMAKOV, K. A., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Acad. Sc. USSR

"Reaction of As (III) Thioacid Esters With Halogens and Some Halogen Containing Compounds"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 7, Jul 72, pp 1612-1616

Abstract: Reaction of trivalent arsenic-thioacid esters with chlorine, bromine, iodine chloride, sulfuryl chloride, thionyl chloride, HCl, PCl_3, phenyldichlorophosphine and ethylphenylchlorophosphine takes place with a total break of the As-S bond forming respective arsine halides and sulfur containing compounds. This resulted in an assumption that a sulfur atom in thioesters is a more reactive center than arsenic. In such a case electrophilic addition of Hal^+ to the sulfur yields a sulfonium intermediate product which then splits along the As-S bond due to a partial shift of electronic density from As to S.

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USSR UDC 547.242

[redacted] KAMAY, G. KH., MAMAKOV, K. A., OSIPOVA, M. P.

"Interaction of Thioacid Esters of Trivalent Arsenic with Alkyl Halides"

Leningrad, Zhurnal Obshchey khimii, Vol XLII (CIV), No 1, 1972, pp 125-129

Abstract: A study was made of the interaction of thioacid esters of trivalent arsenic with alkyl halides to discover the mechanism of this reaction. The explanation is based on the following representation:

$$R_2\ddot{A}sSR' + R''Hlg \longrightarrow \left[R_2As\overset{R''}{\overset{\uparrow}{}}SR'\right]^+ Hlg^- \begin{cases} \xrightarrow{a} R_2AsR'' + R'SHlg \\ \xrightarrow{b} \begin{matrix} R'' \\ \diagdown \\ R \end{matrix} AsSr' + RHlg \end{cases} \quad (A)$$

$$R_2As\ddot{S}R' + R''Hlg \longrightarrow \left[R_2As\overset{R''}{\overset{|}{}}SR'\right]^+ Hlg^- \longrightarrow R_2AsHlg + R'SR'' \quad (B)$$

The reaction conditions, analytical data and physical constants of some of the products are tabulated. The interaction of thioacid esters of trivalent arsenic with alkyl halides leads to breaking of the AsS bonds with the formation 1/2

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CHADAYEVA, N. A., et al., Zhurnal Obshchey khimii, Vol XLII (CIV), No 1, 1972, pp 125-129

of the corresponding halogenoarsines and sulfur-containing compounds.

Experimental procedures, physical properties and yields are presented for three of these compounds.

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USSR UDC 542.91+547.26'119

CHADAYEVA, N. A., KAMAY, the late G. Kh., and MAMAKOV, K. A., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Synthesis of Mixed O,S-Esters of Tervalent Arsenic Acids"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 71, pp 1726-1730

Abstract: The authors attempted to synthesize mixed O,S-esters of some tervalent arsenic acids by reactions of ethoxydichloroarsine with sodium ethyl mercaptide, phenylethoxychloroarsine with sodium ethyl and butyl mercaptides, phenylethoxychloroarsine with butyl mercaptan in the presence of triethylamine, 2-ethoxy-1,3,2-dioxaarsolane with ethyl mercaptan, 2-chloro-1,3,2-dioxaarsolane with sodium phenyl mercaptide and 2-chloro-1,3,2-dithiaarsolane with sodium phenolate. But in all cases instead of the expected mixed O,S-esters the reactions gave the corresponding disproportionation products, viz. esters and thioesters of tervalent arsenic acids. Only in the case of the reaction of 2-chloro-1,3,2-oxathiaarsolane with some sodium mercaptides did the authors succeed in isolating mixed O,S-esters of dithioarsenous acid.

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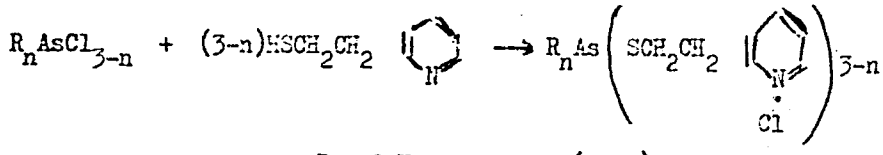
USSR UDC 542.91+541.2+547.242

KAMAY, G. Kh., CHADAYEVA, N. A., MAMAKOV, K. A., Institute of Organic and Physical Chemistry im A. E. Arbuzov, Academy of Sciences USSR

"Synthesis and Properties of beta-(Pyridyl-2)-Ethyl Esters of Some Thioacids of Trivalent Arsenic."

Moscow, Izvestiya Akademiyi Nauk SSSR, Seriya Khimicheskaya, No 5, May 70, pp 1092-1096

Abstract: To produce thioesters of arsenious acid containing cyclic radicals the authors used 3 methods: 1. Reaction of chlorides of trivalent arsenic with beta-(pyridyl-2)-ethylmercaptan



$$R = C_2H_5,\ C_6H_5,\ O(C_6H_4)_2 :\ n=2$$

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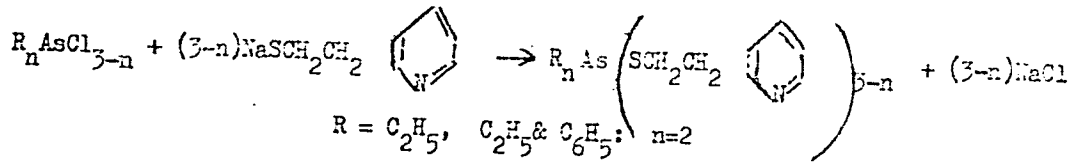
KAMAY, G. Kh., et al, Izvestiya Akademiyi Nauk SSSR, Seriya Khimicheskaya, No 5, May 70, pp 1092-1095

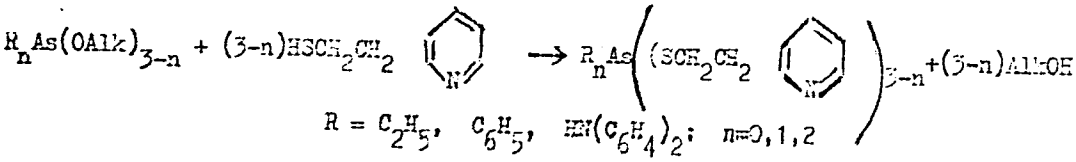
2. Reaction of chlorides of trivalent arsenic with sodium beta-(pyridyl-2)--ethylmercaptide



$$R_nAsCl_{3-n} + (3-n)NaSCH_2CH_2(C_5H_4N) \rightarrow R_nAs(SCH_2CH_2(C_5H_4N))_{3-n} + (3-n)NaCl$$

$R = C_2H_5$, C_2H_5 & C_6H_5; n=2

3. Reaction of alkyl esters of trivalent arsenious acids with beta-(pyridyl--2)-ethylmercaptan



$$R_nAs(OAlk)_{3-n} + (3-n)HSCH_2CH_2(C_5H_4N) \rightarrow R_nAs((SCH_2CH_2(C_5H_4N))_{3-n} + (3-n)AlkOH$$

$R = C_2H_5$, C_6H_5, $HN(C_6H_4)_2$; n=0,1,2

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USSR UDC 542.91+547.26'119+547.269.1

CHADAYEVA, N. A., KAYAY, G. KH. (deceased), and MAKAKOV, K. A., Institute of Organic and Physical Chemistry Imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Reaction of the Alkyl Esters of Pentavalent Arsenic Acids With Mercaptans"

Moscow, Izvestiya Akademii Nauk, Seriya Khimicheskaya, No 7, Jul 70, pp 1640-1642

Abstract: In contrast to the reaction of trivalent arsenic acid esters with various mercaptans, when the alkyl esters of pentavalent arsenic acids were reacted with mercaptans two processes took place: As (V) was reduced to As (III) and the alkoxy group was replaced by the thio group, forming respective thioacid esters of the trivalent arsenic. In some cases no pure product could be obtained due to the fact that on distillation azeotropic mixtures were being formed. The reaction was usually exothermic and consisted of mixing the reagents, removing the solvents and redistilling the product.

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CHADOV, A.N.

METALLURGY

JPRS 67321, 26 Feb. 76

SEMI-SELF MAINTAINED ELECTRICAL DISCHARGE IN METAL VAPORS AND ITS APPLICATION IN THE PRODUCTION OF COATINGS AND CONDENSATES IN A VACUUM

[Article by M. Kh. Shorshorov, G. M. Nikitin, G. N. Nikanov and A. N. Chadov, Moscow, Plazmennyye Protsessy v Metallurgii i Tekhnologii Neorganicheskikh Materialov, Russian, 1973, pp 33-37]

The processes by which thin films are produced are based on physical phenomena that are used extensively in the development of refractory, wear-resistant, optical, protective coatings, and also of various components of electronic circuitry.

The operating conditions of film circuits and coatings impose rigid requirements on their properties (density, electrical conductivity, purity, strength of bond with substrate). These properties are determined by the mechanism of formation of condensation nuclei and conditions of nucleation of the first layers and depend not only on the physical condition of the substrate surface (temperature, presence of oxide films, perfection of the crystal structure etc.), but also on the method and parameters of the coating application process, such as pressure and composition of the residual gas medium, kinetic energy and degree of ionization of precipitating atoms, rate of precipitation.

Thermal evaporation and cathode sputtering are the methods most frequently used for producing coatings and condensates. The use of electron-beam heating in thermal evaporation made it possible to greatly expand the range of materials that can be evaporated and to increase the productivity of the process in comparison with inductive and resistive heating. However the effectiveness of the electron beam method is limited by the very features of the process. As the rate of evaporation increases the number of collisions between electrons and atoms of the evaporated metal also increases. This results in energy loss and angular scattering [1,2]. The feasibility of using electron-beam evaporators is limited to a maximum pressure of 10^{-4} torr [3]. As a result of collisions the number of excited and ionized atoms increases. As the rate of evaporation increases the conductivity of the electrode gap increases and conditions are created that are favorable

to the development of uncontrolled electrical discharge. The excessive increase of current destroys the working parts of the electron gun and poses a danger of failure of the high-voltage power source, designed for small currents. The development of the discharges makes the evaporation process unstable. Consequently the operation of electron-beam evaporators is possible only when ionization processes are limited [4].

At the same time the use of electrical discharge greatly increases the productivity of the evaporation process and improves the quality of the applied films [5,6]. The evaporation of materials by means of an evaporated arc in a vacuum insures the attainment of high precipitation rates. But the arc, possessing high efficiency in comparison with an electron beam, is characterized by instability of the evaporated flow in time. The operation of such an evaporator at low evaporation rates, which do not produce an arc electrode gap the vapor with the density corresponding to arc excitation, is impossible [7].

This problem was solved for evaporation of zinc and cadmium [8]. By means of radiative heating between a molybdenum crucible, containing the metal to be evaporated, and an incandescent tungsten electrode, the required pressure is achieved and discharge occurs in the metal vapors. This method can be used only for evaporating metals with a low melting point.

An electron beam-plasma source design, during the operation of which the required vapor density between the electrode is achieved and maintained by means of electron-beam heating, was developed for the purpose of increasing the number of materials that can be evaporated and for improving evaporation process conditions [9].

The discharge in the metal vapors is stationary, since it can last for a rather long time at the given currents and voltages. The stability of discharge and the stability of the evaporation process depend both on the physical conditions of the discharge and on the properties and parameters of the power source.

Stabilization of a discharge with a falling volt-ampere characteristic can be achieved either through an auxiliary stabilizing resistance, or as a result of the corresponding external characteristic of a power source [10].

Since the energy and the number of particles that bombard the thermoelectronic cathode are not sufficient for developing secondary electron emission, capable of supporting independent arc discharge, the electrical discharge in metal vapors is semi-self supporting.

The flow of vapor that comes from the evaporator during discharge contains positive ions, electrons and neutral atoms. The ion and electron current of this plasma and the degree of ionization of the precipitated atoms were measured by the probe characteristics method [11].

As the rate of evaporation and discharge current increases the degree of ionization of the precipitated atoms of the vapor increases, reaching 25% for the investigated discharge parameters (a current of 1-3A and a voltage

USSR UDC: 681.325.5

KIRICHENKO, Z. M., CHADOV, A. N., Institute of Cybernetics, Academy of Sciences of the UkrSSR

"An Asynchronous Combination Adder"

USSR Author's Certificate No 299415, filed 17 Oct 69, published 3 Feb 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B368 P)

Translation: Asynchronous combination adders are known which contain a unit for forming bit-by-bit mod-2 sums, a unit for propagating carries and non-carries, and a unit for obtaining the complete sum. As a distinguishing feature of the proposed patent, the adder contains a unit for analyzing the bit-by-bit mod-2 sums which contains k + 1 AND-NOT elements (k is the number of sections in the adder). The inputs of k AND-NOT elements are connected to the outputs of the unit for forming the bit-by-bit mod-2 sums, while the outputs of these k elements are connected to the inputs of the (k + 1)-th element, the output of this AND-OR element being connected to the input of the control unit. This increases the speed and improves the reliability of the adder. In contrast

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KIRICHENKO, Z. M., CHADOV, A. N., Soviet Patent No 299415

to the conventional circuit, the proposed device does not determine the moment of completion of carries but rather the duration of propagation of carries with respect to the state of the circuits for bit-by-bit mod-2 addition, which are in the static state throughout the period of cascaded carry. Information on the duration of propagation of carries is transmitted to the control device, which generates an addition completion signal ($П_{ЗН}Σ$) in accordance with this information. One illustration.

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UDC 621.79

KARTASHKIN, B. A., CHADOV, A. N., and SHORSHOROV, M. KH, Moscow

"Mechanism and Kinetics of Bond Formation When Applying Coatings by Evaporation and Condensation of Metals in a Vacuum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 70, pp 45-53

Abstract: An investigation is made of the mechanism and kinetics of formation of a strong bond between a coating and substrate and of the evaporation and condensation of metals in a vacuum based on an analysis of the dependence of the coating's adhesive strength with respect to the substrate on the substrate temperature and degree of activation of the flux of condensing atoms.

For the transition from physical adsorption to the stage of chemical interaction, a certain activation energy is required. This energy is connected with having the atoms overcome the energy barrier on the surface of the solid state. Numerous experimental investigations at the Institute of Metallurgy imeni Baykov of the USSR Academy of Sciences have demonstrated that this energy can be communicated to the system not only by activating the substrate surface by heating, ion pickling, deformation, etc., but also by increasing the kinetic and potential (excitation and ionization) energy of the condensed atoms. Thus, an investigation is made of the mechanism of interaction of the vapor flux atoms on collision with the substrate

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KARTASHKIN, B. A., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-June 70, pp 45-53

surface.

The bond formation process is described mathematically. The following mechanism is considered: out of the number of atoms Y incident on the substrate surface in the time t, X_1 form a strong chemical bond if collision occurs directly with the atoms of active sections of the surface. The ramining atoms in the amount Y_1 the collision of which with the surface took place in other sections of the surface, enter into a physical bond, expending part of their energy on desorption of the gas atoms or other contamination. Part of the atoms X_2 from the total number Y_1 succeed in forming a chemical bond during their active life, and the other part remains in the state of physical interaction with the surface atoms, and their energy relaxes to the mean energy level of the substrate atoms. Finally, some number of atoms X_3 out of the number Y_2 form chemical bonds as a result of fluctuation processes during subsequent application of the coating. All of the processes take place in series or parallel with respect to time at certain rates V_1, V_2, V_3, V_4, V_5, which require interpretation as the number of condensed atoms forming strong chemical bonds with the substrate surface per unit time. It is proposed that the bonding strength of the coating with the substrate is determined by the number of atoms entering into strong chemical bond per unit area of the substrate surface.

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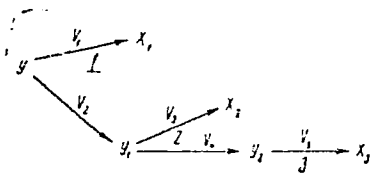
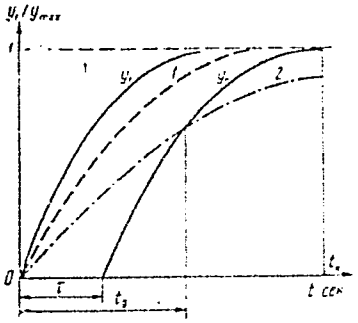
KARTASHKIN, B. A., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-June 70, pp 45-53

Under these assumptions processes 1 and 2 end at the time of formation of a continuous condensate layer on the substrate, and process 3 ends on completion of the process of application of the coating of defined thickness.





Preliminary estimates show that the essential contribution to the total bonding strength can be made by process 1 only if its activation energy is on the order of 10 cal/mol. This low energy of activation of formation of chemical bonds has

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KARTASHKIN, B. A., Et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-June 70, pp 45-53

low probability in the investigated processes; therefore, there are sufficient grounds to consider that mechanism 2 is the basic mechanism in the formation of a strong bond.

On the basis of an analysis of the mechanism of interaction of the flux of condensing atoms with the substrate surface a model is proposed and the kinetic equation of the process of formation of a strong bond between the coating and the substrate is derived. The derived equation and specially stated experiments permitted determination of the energy activation of this process as a function of the parameters of application of the coating. The energy of activation for all interacting pairs is close to half the energy of sublimation. This agrees well with the data of reference [3]. The energy (kinetic and potential) of the condensing atom flux has a significant effect on the process kinetics. The proposed procedure permits approximate calculation of the parameters for application of the coatings. The energy of activation of formation of a strong bond between the coating and substrate is tabulated for various evaporation procedures.

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USSR

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BUDAGOV, YU. A., VINOGRADOV, V. B., VOLOD'KO, A. G., DZHELEPOV, V. P., KIRILLOV-UGRYUMOV, V. G., KLADNITSKIY, V. S., KUZNETSOV, A. A., LOMAKIN, YU. F., MEL'NIKOVA, N. N., PONOSOV, A. K., PLYAGIN, V. B., SHLYAPNIKOV, P. V., MARTINSKA, G.(1), BOLDEA, V. (2), MIKHUL, A. (2), MUMUYANU, D. (2), PONTA, T. (2), FELEA, S. (2), and CHADRAA, B. (3), Joint Institute of Nuclear Research; (1) University imeni P. I. Shafarik, Koshitse, Czechoslovak SSR; (2) Institute of Atomic Physics, Bucharest, Romania; (3) Physics Institute of the Academy of Sciences Mongolian People's Republic, Ulan-Bator

"Study of the Mass Spectrum of a ΛK-System in $\pi^- p$-Interactions at 4 and 5.1 Gev/c"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

Abstract: The results of a study of the spectrum of the effective masses of a ΛK-system are reported. The spectrum was obtained in investigating $\pi^- p$-interactions in a 24-liter and a 1-meter propane bubble chamber irradiated in π-meson beams of the proton synchrotron of the Joint Institute of Nuclear Research with pulses of 4 and 5.1 Gev/c, respectively. An investigation of the structure of the effective mass spectrum of a ΛK-system was of interest from the viewpoint of observing new

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BUDAGOV, YU. A., et al, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol. 11, No. 1, 5 Jan 70, pp 31-35

resonances with zero strangeness and the decays of different isobars via the channel $N^* \rightarrow \Lambda + K$, to determine the relative probabilities of these decays. Approximately 230,000 photographs were analyzed for each bubble chamber. The effective mass spectra of ΛK^0 combinations for events in which the decays of a Λ-hyperon and a K^0-meson were simultaneously recorded in the chamber are graphed. The graphs show a considerable excess in the number of events above the background in the mass region 1.61-1.96 Gev/c^2. It is shown that this anomaly is not associated with the reflection of known resonances Y^* (1385) and K^* (890) in the ΛK^0-spectrum. The total excess in the number of events over the background in the mass interval 1.61--1.96 Gev/c^2 was 114 $\pm$ 13. The experimental data verify the existence of two resonances with masses about 1685 and 1935 Mev/c^2 and widths of the order of 150 Mev/c^2. It is concluded that the anomaly observed in the effective mass spectrum of ΛK can be explained only by the decay of the isobar S_{11} (1710), P_{11} (1750) via the channel $N^* \rightarrow \Lambda + K$ or by the existence of a new resonance with mass about 1685 Mev/c^2, as the data of R. Erbe et al indicate.

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USSR

ANZON, Z. V., et al, Institute of Nuclear Physics, Academy of Sciences, Kazakh SSR, Alma-Ata; BOZOKI, G., et al, Central Research Institute of Physics, Budapest; DALKHAZHAV, N., et al, High-Energy Laboratory, Joint Institute of Nuclear Research, Dubna; BABETSKIY, Ya., et al, Laboratory of High-Energy Physics, Institute of Nuclear Research, Polish Academy of Sciences, Krakow; MASLENNIKOVA, N. V., TRET'YAKOVA, M. I., CHERNYAVSKIY, M. M., Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR, Moscow; ALEKSEYEVA, K. I., Scientific Research Institute of Nuclear Physics, Moscow State University, Moscow; CHERNEV, Kh., TODOROV, P. T., Institute of Nuclear Physics, Academy of Sciences of the People's Republic of Bulgaria, Sofia; TUVDENDORZH, D., SHARKHI, D., CHADRAA, V., Institute of Physics and Mathematics of the Academy of Sciences, Mongol People's Republic, Ulan-Bator); AZIMOV, S. A., et al, Institute of Nuclear Physics Academy of Sciences, Uzbek SSR, Tashkent

"Coherent Generation of Particles by π^--Mesons With Momenta of 45 and 60 Giga-electron-Volts/Sec on the Basis of Photoemulsion Nuclei"

Moscow, Izvestiya Akademii Nauk SSR. Seriya Fizicheskaya, No 9, 1970, pp 1938-1943

Abstract: In the present report are presented data concerning the coherent generation of π^--mesons by π^--mesons at 45 and 60 gigaelectron-volts/sec, obtained by means of nuclear photoemulsion by the laboratories of a number of institutes 1/2

USSR

ANZON, Z. V., ET AL, Izvestiya Akademii Nauk SSR. Seriya Fizicheskaya, No 9, 1970, pp 1938-1943

of the Soviet Union and countries of the Soviet bloc. The joint study was organized by the Photoemulsion Committee of the Joint Institute of Nuclear Research. The preliminary results of this project were presented at the International Conference on Elementary Particles in Lund in June 1969 and at the International Conference on Cosmic Rays in Budapest in August 1969. The path value of the coherent generation of three and five charged particles is obtained from the distribution of charged particles and the angular characteristics of secondary particles on the basis of multiplicity. Comparison of the path value with the corresponding values at lower and higher energies shows a decrease of the run (and, consequently, an increase of the coherent particle-generation cross section) as the energy increases. 5 figures, 11 bibliographic entries.

2/2

USSR

ANZON, Z. V., et al, Instituto of Nuclear Physics, Academy of Sciences, Kazakh SSR, Alma-Ata; BOZOKI, G., et al, Central Research Institute of Physics, Budapest; DALKHAZHAV, N., et al, High-Energy Laboratory, Joint Institute of Nuclear Research, Dubna; BABETSKIY, Ya., et al, Laboratory of High-Energy Physics, Institute of Nuclear Research, Polish Academy of Sciences, Krakow; MASLENNIKOVA, N. V., TRET'YAKOVA, M. I., CHERNYAVSKIY, M. M., Physics Institute imeni P. N. Lebedev of the Academy of Sciences, USSR, Moscow; ALEKSEYEVA, K. I., Scientific Research Institute of Nuclear Physics, Moscow State University, Moscow; CHERNEV, Kh., TODOROV, P. T., Institute of Nuclear Physics, Academy of Sciences of the People's Republic of Bulgaria, Sofia; TUVDENDORZH, D., SHARKHI, D., CHADRAA, V., Institute of Physics and Mathematics of the Academy of Sciences, Mongol People's Republic, Ulan-Bator); AZIMOV, S. A., et al, Institute of Nuclear Physics Academy of Sciences, Uzbek SSR, Tashkent

"Coherent Generation of Particles by π^--Mesons With Momenta of 45 and 60 Gigaelectron-Volts/Sec on the Basis of Photoemulsion Nuclei"

Moscow, Izvestiya Akademii Nauk SSR. Seriya Fizicheskaya, No 9, 1970, pp 1938-1943

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USSR

ANZON, Z. V., ET AL, Izvestiya Akademii Nauk SSR. Seriya Fizicheskaya, No 9, 1970, pp 1938-1943

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USSR

UDC: None

CHADUNELI, A. Sh.

"Designing the Special-Purpose Computer"

Tbilisi, Voprosy Vychislitel'noy Tekhniki, 1970, pp 19-28

Abstract: There is a need for medium and small computers for the solution of problems that are not as complex as those handled by the large ones. In these smaller devices, a proper balance must be struck between speed of action and equipment complexity. As an example of a computer's overcomplexity, the author points to an unidentified example of American manufacture which requires the simultaneous control of several human operators: a chief operator who sits at the control desk, and several junior operators under his command who are entrusted with such simpler operations as information read-ins and read-outs. Although modern computers can perform a large number of commands, they are not necessarily complex, owing to the principle of microprogramming construction in which any command can be executed by a succession of elementary operations which are general for all commands and can therefore be independently programmed in various combinations for the various commands. This paper investigates the problems in the design of combination specialized-universal computers based on a single group operation for structural simplicity while preserving the

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CHADUNELI, A. Sh., Voprosy Vychislitel'noy Tekhniki, Tbilisi 1970, pp 19-28

flexibility of the logic of universal computations. As an example of group operation, the author considers a component of one of two multidimensional vectors and its calculation from their orthogonality condition. Summing up, the author concludes that there is a good possibility of constructing combination computers, for special and general work, of simple structure and logic on the principle of the orthogonalization of multidimensional vectors.

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USSR

CHAGELISHVILI, A. D., Gigiyena Truda i Professional'nyye Zabolevaniya, No 11, Nov 70, pp 26-30

it was of normal size). This finding is not inconsistent with A. Ya. Samoylov's theory that edema of the retina around the optic disk is responsible for enlargement of the blind spot.

USSR

UDC 621.84.014.45+613.644-07:617.7

CHAGELISHVILI, A. D., Institute of Industrial Hygiene and Occupational Diseases, Tbilisi

"Mechanism of the Shifts in Certain Visual Analysor Functions Caused by Vibration"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 11, Nov 70, pp 26-30

Abstract: It has been assumed that the enlargement of the blind spot, narrowing of the visual field, and decreased photosensitivity observed in a number of persons with vibration sickness or who have been occupationally exposed to vibration for 5 years or more were due to spasm of the peripapillary capillaries. To test this assumption, such workers were given caffeine sodium benzoate subcutaneously (1 ml of a 20% solution). Within 15 minutes the blind spot contracted for a period of 30 to 60 minutes, after which it regained its original size. In persons with a blind spot of normal size, the caffeine injection increased its size for 30 to 60 minutes. Local diathermy had the same effect as caffeine, i.e., it temporarily reduced the size of an abnormally large blind spot while enlarging the scotoma (provided 1/2

USSR

UDC: 534.222.2

DERIBAS, A. A., KISELEV, A. N., KUZ'MIN, R. Ye., CHAGELISHVILI, E. Sh.

"Interaction Between Shock Waves and Ceramal"

V sb. Dinamika sploshn. sredy. Vyp. 8 (Dynamics of a Continuous Medium--collection of works, No 8), Novosibirsk, 1971, pp 103-117 (from RZh--Mekhanika, No 7, Jul 72, Abstract No 7B231)

Translation: The article contains a report on the results of calculations of the change in parameters of shock waves formed by detonation of an explosive charge as these waves propagate in three-component ceramals. The alloys were compositions made up of tungsten carbides -- chiefly WC -- and a softer metal -- cobalt. Two cases of interaction are calculated: propagation in a semi-infinite layer of material of a plane shock wave formed by detonation of a charge located on the surface of the material, and the action of a sliding detonation wave on a material surface. The system of equations used in the calculations contains equations of conservation of mass and momentum for the detonation and shock waves, and equations of state for the ceramals and the products of the explosion. The results of the calculations are given in tables and graphs.

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USSR

DERIBAS, A. A. et al., Dinamika sploshn. sredy. Vyp. 8, Novosibirsk, 1971, pp 103-117

To carry out the calculations experimentally by the method of reflection, the adiabatic shock curve was determined for VK-8 alloy in specimens 12 mm in diameter and 3-4 mm thick. The dimensions of the particles of hard carbide phase and softer cementing cobalt phase were of the order of 0.5-10 μ. The resultant adiabatic shock curve in the form of a linear relation between the wave velocity D and the mass velocity u is given as $D = 4.52 + 2.28u$ km/s, and is valid over the pressure range of approximately 10^{10}-$6 \cdot 10^{10}$ N/m^2. A method is proposed for calculating the adiabatic shock curves of three-component systems which utilizes knowledge of the adiabatic shock curves of each individual component. The adiabatic shock curve calculated for VK-8 alloy coincides satisfactorily with the experimental curve. The results of calculations of the adiabatic shock waves for WC, VK-11, VK-15, VK-20, VK-25 and VK-30 are given. It is pointed out that the results of experiments on x-ray analysis of the study specimens retained after impact compression to high pressures enable use of the calculated adiabatic shock curves in the pressure interval up to $2 \cdot 10^{11}$ N/m^2. Bibliography of 8 titles. O. K. Rozanov.

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USSR UDC 541.183.02 + 539.232

BAGRATISHVILI, G. D., GOGESHVILI, M. D., DZHANELIDZE, R. B., CHAGELISHVILI, V. A., and KHARATI, R. G.

"Structure and Properties of Germanium Oxide Films"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

Abstract: The authors undertook to obtain germanium oxide films during the oxidation of single-crystal germanium with gaseous oxygen and to compare them with GeO_2 films obtained by other methods, as well as to study their structure and properties. Specimens of GeO_2 films were obtained by the following methods: 1) pyrolytic decomposition of tetraethoxygermanium, 2) oxidation of Ge in an oxygen stream, and 3) oxidation of germanium after gas etching in O_2 in an oxygen atmosphere in a closed system. The resultant GeO_2 films were studied by means of IR spectra and by electron

USSR

BAGRATISHVILI, G. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

diffraction. It was found that different crystallographic modifications of GeO_2 are obtained according to the experimental conditions. An amorphous modification of GeO_2 results from decomposition of tetraethoxygermanium, hexagonal from oxidation in an oxygen stream, tetragonal from oxidation in a closed system with preliminary gas etching with oxygen. The resultant crystallographic modifications are characterized by different work function and resistivity values, with these parameters increasing as follows: amorphous < hexagonal < tetragonal, coinciding with the direction of material density increase. The effect of water vapors at various temperatures on the structure and properties of GeO_2 was studied to find whether the transition of different modifications from one to the other is possible. IR spectra indicate that with the treatment

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USSR

BAGRATISHVILI, G. D., et al., Doklady Akademii Nauk SSSR, Vol 196, No 2, 1971, pp 342-344

of amorphous GeO_2 in a stream of H_2O + Ar the transition to a hexagonal modification begins at comparatively low temperatures. Treatment of tetragonal GeO_2 in a stream of H_2O + Ar results in its irreversible transition to a hexagonal modification.

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USSR

CHAGIN, I. M., and SHCHERBATYKH, YU. I.

"The Problem of the Automation of the Filtration Processes in the Production of Pesticides"

V sb Khim. sredstva zashchity rast. (Chemical Plant Protective Agents), Moscow, Vyp 2, 1972, pp 106-109 (from RZh-Khimiya, No 21, Nov 73, Abstract No 21N535)

Translation: The filterability of 6-chlorobenzoxazolinone pulp obtained by chlorination of benzoxazolinone in tetrachloroethane has been investigated. It has been shown that in order to achieve the automation of the filtration processes during production of pesticides speciall hermetically sealed, explosion proof filters has to be developed, made of materials resistance to aggressive media consisting of organic solvents saturated with chlorine and hydrogen chloride.

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USSR

UDC 577.15:612.744

CHAGOVETS, N. R. and MAKSIMOVA, L. V., Leningrad Institute of Physical Culture

"The ATP-Phosphocreatine-transferase System of the Skeletal Muscles During Work and Rest"

Kiev, Ukrains'kiy Biokhimichniy Zhurnal, No 6, 1972, pp 744-748

Abstract: Brief intense muscular activity of rats produces marked changes in the content of the substrates of the creatinekinase system. Besides a considerable consumption of phosphocreatine, there is a sharp decrease in the phosphocreatine/creatine ratio greater than the decrease in the ATP/ADP ratio. However, no significant changes take place in ATP-phosphocreatine-transferase activity. After 30 minutes' rest, the phosphocreatine content in the muscle is restored or rises slightly above the original level. The phosphocreatine/creatine ratio is almost 50% above the preactivity value while the ATP/ADP ratio is close to the baseline. After 60 minutes' rest the phosphocreatine content is 40% above the original level, thus contributing to the supercompensation phase after exertion. At this time the direct creatinekinase reaction remains intense, whereas the indirect reaction tends to become inhibited.

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USSR UDC 612.744

KRASNOVA, A. F., LENKOVA, R. I., LESHKEVICH, L. G., MAKSIMOVA, L. V., CHAGOVETS, N. R., and YAKOVLEV, N. N., Sector of Biochemistry, Leningrad Institute of Physical Training, Leningrad

"Characteristics of Energy Metabolism in Muscular Activity in Relation to the Degree of Adaptation of the Organism to This Activity"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 58, No 1, Jan 72, pp 114-121

Abstract: A study conducted on more than 250 athletes of various degree of experience and training indicated that with increasing adaptation of the organism to intensive muscular activity there was an increase in the level of sugar and lactate in the blood at which reinforced mobilization and utilization of fatty acids in connection with muscular effort could take place. As a result a more effective supply of the working muscles with energy sources was ensured and the ATP balance was disturbed to a lesser extent. This constituted a factor that increased the working capacity.

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USSR

UDC 612.89+612.766.1:796

YAKOLEV, N. N., CHAGOVETS, N. B., and GOROKHOV, A. L., Sector of Biochemistry, Leningrad Scientific Research Institute of Physical Culture

"The Significance of the Sympatho-Adrenal System at Rest and During Adaptation to Muscle Activity"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 58, No 7, 1972, pp 1,132-1,137

Abstract: Intact white rats, rats given either adrenaline or sympatholysin, and rats which had undergone bilateral abdominal sympathectomy were subjected to daily physical training in the form of swimming for periods increased each day. Determinations of glycogen, creatine phosphate, lipid phosphate, noradrenaline, phosphorylase, and glycogen synthetase in muscle tissue and of adrenaline and noradrenaline in blood were made prior to swimming, immediately thereafter, and at various periods at rest. The results indicate that the sympathoadrenal system controls not only catabolic processes during work but also anabolic processes at rest. It exerts trophic adaptive effects in the formation of muscle response to activity, in addition to adjusting the nature and intensity of metabolic processes in muscle tissue to the functional demands at any given moment.

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USSR UDC 612.744.2

YAKOVLEVA, N. N., KRASNOVA, A. F., LENKOVA, R. I., SAMSONOVA, G. I., and CHAGOVETS, N. R., Biochemistry Sector, Leningrad Research Institute of Physical Culture

"Restoration After Muscular Activity Under Different Temperature Conditions"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, No 5, 1971, pp 556-561

Abstract: Fifteen minutes swimming in water at 32°C produced in rats previously trained (3 months) for this activity a more economical consumption of glycogen, creatine phosphate, and mitochondrial protein, smaller increase in blood and muscle lactate and blood sugar levels, and less intense enzyme activity compared with untrained controls. Moreover, the biochemical changes occurring in the rest period were indistinct or absent (e.g., no supercompensation of glycogen and creatine phosphate content, hypolactacidemia, decrease in cytochrome oxidase activity) in the trained animals. On the other hand, swimming in water at 22° produced far greater biochemical changes in the muscles of the trained rats than swimming in water at an optimum temperature (32°) did in the untrained animals. And during the recovery period the trained rats

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USSR

YAKOVLEVA, L. N., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, No 4, 1971, pp 556-561

exhibited marked supercompensation of the glycogen content of the muscles, mitochondrial protein, and creatine phosphate, distinct hypolactacidemia, decrease in muscle lactic acid below the original level, and increased activity of the redox enzymes.

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1/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--PROBLEMS OF BIOCHEMISTRY OF SURPLUS SYNTHESIS OF PYRIDINE ADENINE DINUCLEOTIDES -U-

AUTHOR-(03)-CHAGOVETS, R.V., KHALMURADOV, A.G., SHUSHEVICH, S.I.

COUNTRY OF INFO--USSR

SOURCE--UKRAYNS'KIY BIOKIMICHNIY ZHURNAL, 1970, VOL 42, NR 2, PP 191-200

DATE PUBLISHED--------70

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CONTROL MARKING--NO RESTRICTIONS

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PROXY REEL/FRAME--1988/1678 STEP NO--UR/0300/70/042/002/0191/0200

CIRC ACCESSION NO--AP0106424

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0106424

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DYNAMICS OF MULTIPLY RISE OF CONTENT IN LIVER TISSUE OF PYRIDINE ADENINE DINUCLEOTIDES (PAD) AFTER ADMINISTRATION OF NICOTINIC ACID (NA), NICOTINAMIDE (NAM) AND 3 METHYLPYRIDINE,BETA,PICOLINE (3 MP) INTO THE DIFFERENT ANIMALS DEPENDS ON THE NATURE OF INTRODUCED PYRIDINE DERIVATIVES AND THEIR DOSE, IS CHARACTERIZED BY DEFINIT SPECIFIC PECULIARITIES AND OCCURS WITHOUT THE CHANGE IN THE ACTIVITY OF DEHYDROGENASES DEMANDING THE PYRIDINE CONTAINING COENZYMES. WITH THE SURPLUS SYNTHESIS OF PAD THE ADENILIC MOIETY OF ATP IS USED AS A STRUCTURAL MATERIAL IN AMOUNTS EXCEEDING ITS CONTENT IN LIVER TISSUE. NEW FORMATION OF PAD DEMANDS THE ADDITIVE AMOUNTS OF PHOSPHORIBOSYLPYROPHOSPHATE AS WELL AS GLUTAMINE FOR NA AMIDATION. ALL THESE PROCESSES CONDITION THE EXHAUSTING INTENSIFICATION OF THE ENERGETIC METABOLISM. THE INCREASE OF THE CONTENT OF THE LABILE PHOSPHORUS IN TISSUE TESTIFIES TO THIS FACT.

UNCLASSIFIED

USSR

UDC 678.746

VARDOSANIDZE, TS. N., GVATUA, SH. SH., GEORGADZE, YE. Z., KAPANADZE, V. I., MUMLADZE, V. V., KHANEVICHEV, V. A., CHAVCHANIDZE, V. V., Corresponding Member of the Georgian Academy of Sciences SSR, CHAGULOV, V. S., and CHKHIKVISHVILI, L. V., Institute of Cybernetics, Academy of Sciences Georgian SSR

"Several Spectral Characteristics of Polystyrene Activated with Europium Chelate"

Tbilisi, Soobshcheniya Akademii Nauk Gruzinskoy SSR, Vol 63, No 3, Sep 71, pp 581-584

Abstract: The spectral characteristics of Eu^{3+} chelates have been investigated by a number of authors both in methylmetacrylate and in alcohol solutions. In this article the authors investigate samples of polystyrene doped with 0.02-2 Wt % europium benzoyl acetonate; the samples are 15 mm in diameter and 2 mm thick. They find that such a material exhibits a strong absorption in the region of 3000-4000 Å and the material of the base that is, polystyrene has strong absorption bands in the ultraviolet band of the spectrum; however, it is fully transparent from 3000 Å and up to 1.1μ . The luminescence and absorption spectra are graphically illustrated. The authors find that polystyrene is a successful base for europium benzoyl acetonate. The article contains 3 illustrations and 8 bibliographic entries.

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USSR

UDC: 621.382.002

CHAGULOV, V. S., GOYKHMAN, I. E., BLAGIDZE, Yu. M., NAKASHIDZE, G. A., ELIZ-BARASHVILI, O. A., Institute of Cybernetics, Academy of Sciences of the Georgian SSR

"An Optron"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329602, Division H, filed 26 May 70, published 9 Feb 72, p 210

Translation: This Author's Certificate introduces an optron which contains a photoreceiver, an emitter and a shell. As a distinguishing feature of the patent, sealing is improved and optical coupling is provided between the receiver and the emitter by making the shell from transparent copolymers with a low index of refraction, and by filling the space between the photo-receiver and emitter with a polymerized copolymer with a high index of re-fraction.

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USSR UDC 621.791.763.1:669.7.018

CHAKALEV, A. A., Candidate of Technical Sciences, PODLESNYKH, V. G., Engineer, ORLOV, B. D., Doctor of Technical Sciences and TSAR'KOV, G. P., Engineer

"Some Problems of Selection of Spot Welding Modes for Light Alloys"

Moscow, Svarochnoye Proizvodstvo, No 4, Apr 72, pp 23-24.

Abstract: In this work, the process of spot welding is studied from the standpoint of plastic deformation of the metal when electrodes with spherical working surface are used. The role of plastic deformation of metal during spot welding is shown to be significant, determining the resistance of the process to the formation of various welding defects and the effectiveness of heating. A system of classification of light alloys based on plastic deformation resistance of the material under conditions of spot welding is suggested. A relationship is suggested for approximate estimation of certain mode parameters. Recommendations are given for the selection of types of welding machines.

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USSR UDC 615.31:[547.94+546.22]7.014.45

GRACHEV, S. A., CHAKCHIR, B. A., and RYABYKH, L. D., Military Medical Academy imeni S. M. Kirov, Institute of Nuclear Physics, Academy of Sciences USSR, Leningrad

"Study of the Feasibility of Radiation Sterilization of Pharmaceutical Preparations of Some Alkaloids and Sulfur Containing Substances"

Leningrad, Khimiko-Farmatsevticheskiy Zhurnal, Vol 7, No 5, May 73, pp 47-50

Abstract: The feasibility of radiation sterilization was studied on ephedrine hydrochloride, atropine sulfate, scopolamine hydrobromide, strychnine nitrate, morphine hydrochloride, codeine phosphate, proserine, cysteamine hydrochloride, and unithiol in form of injectable solutions and as powders. It was shown that the sterilizing dose of radioactivity results in a breakdown of the solutions as shown by changes in the pH, color and loss of biological activity. Alkaloid powders exhibited no changes after radiation sterilization. Deaerated solutions were also stable to the radiation but such solutions could not be prepared easily under industrial conditions. Temperature had no effect on the stability of test samples except for very low temperatures.

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USSR UDC 541.15:615.784

CHAKCHIR, B. A., GRACHEV, S. A., RYABYKH, L. D., Military Medicine Order of Lenin Red Banner Academy Imeni S. M. Kirov, Leningrad Institute of Nuclear Physics, Acad. Sc., UzSSR

"Radiolysis of Tropane Alkaloids in Aqueous Solutions"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 3, 1972, p 401

Abstract: Yields of the decomposition products obtained from irradiation of alkaloids do not depend on the concentration of the irradiated solution. Increasing the dose of radioactivity leads to a lower yield. The breakdown products obtained from the irradiation of alkaloids show no biological activity. Tropine and tropic acid were identified among the products obtained from irradiated atropine.

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UDC 611.45+611.41]-018.068

USSR

CHAKHAVA, O. V., LEBEDEV, K. A., and TSATSENKINA, T. I., Laboratory of General [redacted] Radiation Immunology, Institute of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical Sciences USSR; Institute of Medical Biological Problems, Ministry of Health USSR

"Morphological and Functional Characteristics of Lymphoid Organs and Adrenal Glands in Germ-Free Guinea Pigs"

Leningrad, Arkhiv Anatomii, Gistologii, i Embriologii, Vol 58, No 6, Jun 70, pp 28-34

Abstract: The effect of microflora on the morphological and functional condition of lymphoid tissue and of the adrenal glands was studied. Germ-free guinea pigs were obtained on the last day of pregnancy by hysterectomy, were maintained in special polyvinyl chloride isolation chambers on a sterilized diet and raised under sterile conditions for 16 days. They were then given a thorough microbiological check once or twice each week. Twenty-six germ-free (and more than 100 ordinary animals) were used. Five sterile guinea pigs were subjected to nonpathogenic, Staphylococcus albus from the 5-6th week of life. After 1-2 months the animals were killed. A pure culture of Staphyloccus albus in the feces of these animals reached 2-10 billion cells per 1 g of feces. In 1/2

USSR

CHAKHAVA, O. V., et al., Arkhiv Anatomii, Gistologii, i Embriologii, Vol 58, No 6, Jun 70, pp 28-34

germ-free animals, popliteal and iliocaecal lymph nodes and Peyer's patches were much smaller and contained much fewer globulin-producing cells, and 20-40 times fewer secondary follicles, as compared to controls. However, in germ-free guinea pigs, the number of globulin-producing cells in the submucosa of the intestine was somewhat below that of normal animals. The spleen tissue of germ-free guinea pigs was of normal relative weight. Considerable adrenal hypertrophy was found in the test animals, and their oxycorticosteroid level and the ascorbic acid content in the adrenal glands were high.

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Acc. Nr.: AP0029498 Ref. Code: UR 0297

PRIMARY SOURCE: Antibiotiki, 1970, Vol 15, Nr 1, pp27-30

DETERMINATION OF MURAMIDASE PRODUCTION IN VARIOUS CELL CULTURES OF HUMANS AND ANIMALS

A. G. Goryunova, O. V. Chakhava.

Institute for Virus Preparations, N. F. Gamaleya Institute for Epidemiology and Microbiology of Academy of Medical Sciences of the USSR, Moscow

Primary cell cultures prepared by trypsinization of the monkey kidneys, the embryon kidneys of humans and chikens, the skin muscle tissues of mouse and human embryons, hen fibroblasts, transplantable cell lines (SOC, FK, HeLa, Hep-2, Ma-134, KPK, C_{18}, PAO, Rh, Liv, D_6), diploid cells Wi-38, as well as cultures of histiocyte macrophages of the mouse bone marrow and leucocytes of human peripheral blood were used. Investigation of the cell extracts and the culture fluids showed the absence of muramidase production in all the above cultures except the latter two. The settled histiocyte macrophages and macrophages of hematogenic origin must be the main sources of muramidase (lysozyme) in various host tissues.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--GLUCOCORTICOIDS FUNCTION OF ADRENAL CORTEX IN GUINEA PIGS FREE FROM GERMS -U-

AUTHOR--SHAPIRO, G.A., CHAKHAVA, O.V., ATAMANOVA, O.M.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 140-141

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ADRENAL CORTEX, CORTICOID, GUINEA PIG, GNOTOBIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0791 STEP NO--UR/0301/70/016/002/0140/0141

CIRC ACCESSION NO--AP0102754

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0102754
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN GUINEA PIGS FREE FROM GERMS THE CONCENTRATION OF 11 HYDROXYSTEROIDS IN THE BLOOD WAS INCREASED BY 6,5 TIMES AS COMPARED TO THE CONTROL ANIMALS. GLUCOCORTICOIDS CONTENT IN ADRENALS WAS SIMULTANEOUSLY DECREASED. THE INCREASE IN 11-OXYCORTICOSTEROIDS CONCENTRATION IN THE BLOOD OF ANIMALS FREE FROM GERMS IS CONDITIONED BY FREE PHYSIOLOGICALLY ACTIVE FRACTIONS AND TESTIFIES TO THE ELEVATION IN FUNCTIONAL ACTIVITY OF THE SYSTEM: HYPOPHYSIS ADRENAL CORTEX.

UNCLASSIFIED

USSR

UDC 621.384.6

ANAN'YEV, L.M., BEL'TYAYEV, YU.N., CHAKHLOV, V.L. [NII pri Tomsk politekhn.in-te --Scientific-Research Institute Attached To Tomsk Polytechnical Institute]

"Electron Injector"

USSR Author's Certificate No 274253, filed 4 Feb 67, published 17 Sept 70 (from RZh--Elektronika i yeye primeneniye , No 4, April 1971, Abstract No 4A360P)

Translation: With the object of increasing the lifetime of the cathode, an air-cored pulse transformer is connected by the secondary winding between the cathode and the pulsed injector, and by the primary winding with the reservoir capacitance in parallel with the pulse generator.

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AA0044643 CHAKHOYAN L.M. UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

239664 ODD-EVEN CHECK for pulse codes requires two transformers (1,2) which are connected in opposition in such a way that output signals are produced only when the number of input pulses is odd. Two diodes (3,4) clear the passage of pulses of only positive polarity to collective diodes (5,6). The output pulses of the previous check stage (7) which appear only on the outputs of modules I - V where the number of input pulses is even, are passed to similarly operating modules VI - VII of the last check stage (8) etc.

13.2.68 as 1218368/18-24. V.V. MARTYNOV & L.M.CHAKHOYAN. (10.9.69) Bul 11/18.3.69. Class 42m^3. Int.Cl.G 06 f.

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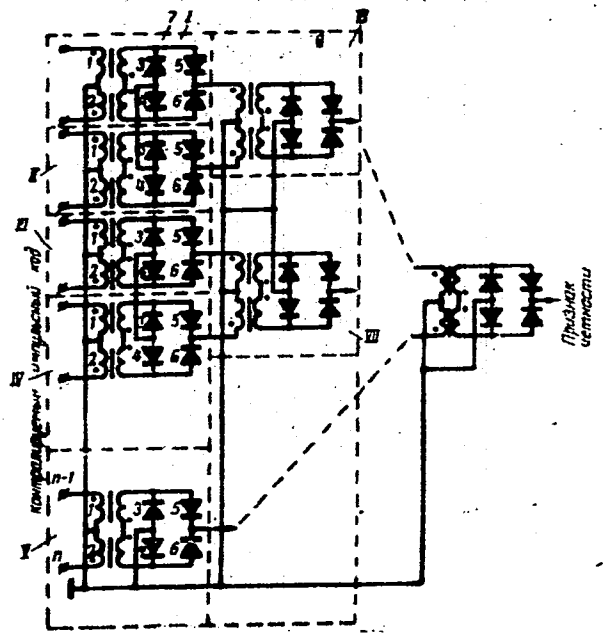
19771347

AA0044643



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19771348

USSR

CHAKLIKOV, T. Ye., Gur'yev Municipal Sanitary-Epidemiological Station

"Preliminary Results of a Study of the Reactivity of Live Measles Vaccine From Strain L_{16}"

Alma-Ata, Zdravookhraneniye Kazakhstana, No 8, 1971, p 45

Translation: The injection of live measles vaccine (LMV) is known to produce reactions in some children. The reactivity of LMV varies with the age of the children vaccinated, vaccine series, immunogenicity, and so forth. Therefore, the vaccine must be studied. According to the data of some investigators, the indexes of reactivity (temperature reaction, rash, inflammatory phenomena) are varied.

As indicated in an earlier article (Zdravookhraneniye Kazakhstana, 1970, No 1), we studied the reactivity of LMV in Gur'yev among organized preschool children for 25 days from the time they were immunized. We recorded our observations of the vaccinated and control groups in a special log.

The temperature response was the principal and most regular manifestation of postvaccinal reactions, which were of three kinds: high (above 38.5°C),

Pesticides

USSR

UDC 542.91+632.938

DOVLATYAN, V. V., and CHAKRYAN, T. O., Armenian Agricultural Institute (Yerevan)

"Pesticide Synthesis. 4,6-bis-Arylamino-symm-triazinyl-2-mercaptoacetic Acids"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 7, 1971, pp 629-631

Abstract: To 0.01 mole of thourea dissolved in 20 ml anhydrous acetone, 0.01 mole of 2-chloro-4,6-bis-arylamino-symm-triazine is added and refluxed with stirring for 4 hrs. The product -- S-[4,6-bis-arylamino-symm-triazinyl-2-thiouronium] hydrochloride (I) -- precipitates and is washed with anhydrous acetone: aryl substituent, decomposition point, °C are reported: C_6H_5, 262-263; o-$CH_3C_6H_4$, 218-219; m-$CH_3C_6H_4$, 241-242; o-ClC_6H_4, 197, m-ClC_6H_4, 272-273; and p-ClC_6H_4, 284-286. Adding 0.02 mole of sodium hydroxide in 16 ml of 50% ethyl alcohol to 0.01 mole of (I) and refluxing for 2 hrs followed by addition of 0.02 mole of chloroacetic acid and 0.04 mole sodium hydroxide in 16 ml of 50% ethyl alcohol converts (I) to the free acid -- 4,6-bis-arylamino-symm-triazinyl-2-mercaptoacetic acid; aryl substituent, decomposition point °C are reported: C_6H_5, 340; o-$CH_3C_6H_4$, 216-217; m-$CH_3C_6H_4$, 185-186; o-ClC_6H_4, 207-208; m-ClC_6H_4, 220-221; and p-ClC_6H_4, 247-248.

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USSR UDC 542.91+547.872+632.928

DOVLATYAN, V. V., CHAKRYAN, T. O., and METSBURYAN, Dzh. A., Armenian Agricultural Institute, Yerevan

"Pesticide Synthesis. 4,6-bis-Alkyl(dialkyl)amino-symm-2-triazinyl-mercaptoacetic Acid"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 24, No 3, 1971, pp 264-270

Abstract: Title compounds were synthesized and characterized. The synthesis consists of the reaction of S-4,6-bis-alkyl(dialkyl)amino-symm-triazinyl-2-thiuronium chlorides with a mixture of chloracetic acid and sodium hydroxide followed by acidification with hydrochloric acid. Another route consisted of saponification of the esters obtained from the reaction of ethyl thioglycolate with 2-chloro-4,6-bish-alkyl-(dialkyl)amino-symm-triazines or 2,4-dichloro-6-alkyl(dialkyl)amino-symm-triazines followed by amination of the 2-chloro-4-alkyl(dialkyl)amino-symm-triazinyl-2-mercaptoethyl acetates. The compounds exhibited no herbicidal activity; sodium salts of 4,6-bis-diethylamino-symm-triazinyl- and 4-ethylamino-6-isopropylamino-symm-triazinyl-2-mercaptoacetic acid exhibited growth promoting properties.

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USSR

UDC 619:576.807.7-616.988.43

GULIYEV, M. A., CHAKVETADZE, N. V., and KHUKHUNAISHVILI, P. I., Republic Veterinary Laboratory, Ministry of Agriculture Georgian SSR

"Improved Typing of Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 9, 1971, pp 33-34

Abstract: The reaction of prolonged inhibition of complement fixation, based on the phenomenon that incomplete antibodies are formed in the blood of animals with infectious diseases, was used for the identification and typing of foot-and-mouth disease (FMD) virus in the serum of animals convalescing from the disease. All of the elements entering into a complement fixation reaction -- standard FMD virus hyperimmune sera and antigens O, O_{194}, A, A_{22}, and C, hemolysin, complements, and washed ram's eryhtrocytes were used. The sera were diluted in physiological saline, inactivated, and poured into test tubes to which standard antigens of various types and variants were added, and kept at 2-4°C for 18-20 hours. Standard sera with complement and hemolysin were added and warmed at 37°C for 30 minutes. Anticomplement and hemolytic activity of the sera were studied for control purposes. The method was used in the study of 231 sera obtained from convalescing cattle, 11 -- from sheet and goats, and six from hogs. In all cases hemolysis was

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USSR

GULIYEV, M. A., et al., Veterinariya, No 9, 1971, pp 33-34

strongly inhibited, which indicates the specificity of the method. The prolonged complement fixation inhibition reaction can thus be recommended for use in the identification and typing of FMD virus.

USSR UDC 669.721.472(088.8)

BURDAKOV, YU. M., KOLOMIYTSEV, A. V., TRET'YAK, S. D., and CHALABAYEV, I. A.

"Method for Protecting Anodes of a Magnesium Electrolytic Reduction Cell With Overhead Anode Lead"

USSR Author's Certificate No 259397, filed 15 Apr 68, published 28 Apr 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G136 P)

Translation: A method is proposed for protecting anodes of a magnesium electrolytic reduction cell with top introduction of anodes by teeming with a refractory material. In order to increase the anode's life, the teeming of the anode block is carried out over the entire perimeter with refractory low-pore concrete, and open grooves are made between individual bricks of the block. The grooves are also filled with refractory concrete.

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USSR

UDC 669.721.472(088.8)

YELIN, N. M., BURDAKOV, YU. M., KOLOMIYTSEV, A. V., CHALABAYEV, I. A., KOLYADZIN, A. A., TSIDVINTSEV, G. V., and BIBIK, G. P., Ust'-Kamenogorsk Titanium-Magnesium Combine imeni 50th Anniversary of October

"Vacuum Ladle"

USSR Author's Certificate No 254104, filed 28 Nov 66, published 5 Jan 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G139 P)

Translation: A design is proposed for vacuum ladle which consists of a lock and a tap hole. To simplify the servicing of the magnesium electrolytic reduction cells, it is equipped with a teeming device, which is made in the shape of a branch connection with bottom closing device mounted on the lid of the ladle.

1/1

UDC 577.1:615.7/9

USSR

BABAYAN, E. A., CHALABYAN, Zh. A., and ARAGATSUNI, A. V.

"Nucleotide Composition of RNA in the Organs of Experimental Animals Subjected to Inoculation with Flotation Agent OPSB [oxidized propylenebutanol]"

Tr. Klinich. otdl. NII gigiyeny truda i profzabolebaniy (Transactions of the Clinical Department of the Scientific Research Institute of Work Hygiene and Occupational Diseases), No 1, 1970, pp 120-123 (from RZh-30F. Biologicheskaya Khimiya, No 11, Jun 71, Abstract No 11F2079)

Translation: Five mg/kg of OPSB was daily administered orally to rats for a period of 4.5 months. A decrease was discovered in the RNA content in cerebral tissue (29.9%) and liver (13%); in addition, the uracyl content in the brain dropped (27.5%) and the guanine content increased (25.8%); in the liver, the cytosine content dropped (14.2%) and the adenine content increased (18.8%)

D. G.

1/1

1/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--ENERGY BAND STRUCTURE OF TERNARY DIAMOND LIKE A PRIME2 B PRIME4 C PRIME5 SUB2 TYPE SEMICONDUCTORS -U-

AUTHOR-(04)-GORYUNOVA, N.A., POPLAVNOI, A.S., POLYGALOV, YU.I., CHALDYSHEV, V.A.

CCOUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 39, NR 1, PP 9-17

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ENERGY BAND STRUCTURE, SEMICONDUCTOR MATERIAL, SEMICONDUCTOR DEVICE, DIAMOND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1731 STEP NO--GE/0030/70/039/001/0009/0017

CIRC ACCESSION NO--AP0112723

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0112723

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN SUMMARY, THE CALCULATIONS OF THE BAND STRUCTURE PARAMETERS AND THE COMPARISON WITH THE EXPERIMENTAL DATA HAVE SHOWN THAT IN THE COMPOUNDS OF THE A PRIME2 B PRIME4 C PRIME5 SUB2 TYPE A COMPLICATED CONDUCTION BAND STRUCTURE EXISTS (FOR EXAMPLE, IN ZNGEP SUB2, ZNSIAS SUB2, CDSIP SUB2). IN PAPER (37) THE INFLUENCE OF THIS STRUCTURE ON THE PHYSICAL PROPERTIES HAS BEEN ALREADY DISCUSSED. THE CALCULATIONS HAVE SHOWN THAT IN ALL COMPOUNDS THE TOP OF THE VALENCE BAND CORRESPONDS TO THE T SUB4 REPRESENTATION (LIGHT HOLES). HOWEVER, IN THE CASES WHEN DELTA SUBER IS SMALL THIS RESULT CANNOT BE CONSIDERED AS UNAMBIGUOUS, AND T SUB5 (HEAVY HOLES) CAN LIE HIGHER THAN T SUB4, WHICH IS JUST OBSERVED IN A NUMBER OF EXPERIMENTS. THE COMPLICATED BAND STRUCTURE AND A VARIETY OF ITS PARAMETERS PERMIT TO THINK THAT THE TERNARY A PRIME2 B PRIME4 C PRIME5 SUB2 COMPOUNDS WILL PROVE TO BE SUITABLE MATERIALS FOR CREATING NEW SEMICONDUCTOR DEVICES WITH A WIDE RANGE OF PROPERTIES. IT IS HOPED THAT THE RESULTS GIVEN IN THIS WORK WILL AID IN A BETTER UNDERSTANDING OF EXPERIMENTS AND WILL HELP TO APPRECIATE CLEARLY POSSIBLE DIRECTIONS OF FURTHER INVESTIGATIONS.

FACILITY: A. F. IOFFE PHYSICO-TECHNICAL INSTITUTE, ACADEMY OF SCIENCES OF THE USSR, LENINGRAD. FACILITY: V. D. KUZNETSOV SIBERIAN PHYSICO-TECHNICAL INSTITUTE, TOMSK.

UNCLASSIFIED

USSR UDC 539.1.01

POPLAVNOY, A. S., POLYGALOV, Yu. I., and CHALDYSHEV, V. S., Siberian Physicotechnical Institute imeni V. D. Kuznetsov attached to Tomsk State University

"Energy Band Structure of Semiconductors With Chalcopyrite Lattice. III. $ZnSnP_2$, $CdSnP_2$, $ZnGeAs_2$, $CdGeAs_2$, $ZnSnAs_2$, $CdGeP_2$, $CdSiAs_2$"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 7, 1970, pp 17-22

Abstract: Previous articles by the authors developed a pseudopotential method for calculating the band structure of semiconductors with a chalcopyrite lattice and gave calculations for some compounds of the type $A^{II}B^{IV}C_2^V$. The present article calculates the band structure of a new group of compounds of the type $A^{II}B^{IV}C_2^V$; viz., $ZnSnP_2$, $ZnGeAs_2$, $ZnSnAs_2$, $CdSnP_2$, $CdGeAs_2$, $CdGeP_2$, $CdSiAs_2$. The calculations are performed at the most important symmetric Brillouin zone points Γ, T,

USSR

POPLAVNOY, A. S., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy -- Fizika, No 7, 1970, pp 17-22

N, P. The top of the valence band and the bottom of the conduction band are found to correspond to the point Γ. The dispersion law in the neighborhood of Γ is approximately given by Kane's formulas.

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Acc. Nr: AP0036821 C Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i Immunobiologii, 1970, Nr 1, pp 75-81

COLORIMETRY OF DRY WEIGHT OF BACTERIAL CULTURES. REPORT I. DETAILS OF THE METHOD

V. G. Chalenko, I. K. Volodina, S. N. Rumyantsev

The authors present the experimental results to ascertain the applicability of colorimetric method of determination of dry residue of tissue homogenates (Bailey a. Meymandi-Nejad, 1961) for corresponding analysis of S. typhi cells. Assessment of details of the method demonstrated the principal possibility of applying colorimetric procedures for analysis of bacterial biomass.

D.K.

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USSR

UDC 576.8.093.6

CHALENKO, V. G., BOLODINA, I. K., and RUMYANTSEV, S. N., Leningrad Institute of Vaccines and Sera

"Colorimetric Method of Determining the Dry Weight of Bacterial Cultures. I. Details of the Method"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 1, 1970, pp 75-80

Abstract: The method of Bailey and Meymandi-Nejad (J. Lab. Clin. Med., 1961, Vol 58, p 667) was tested using S. typhi cells. A direct relationship was discovered between the dry residue in a sample and the extinction values determined in a photocolorimeter after oxidizing the sample with potassium bichromate. The technique is simple. It requires a sample of at least 1 ml, 2 ml, of reagent, and heating of the sample to 100° C for 30 min, after which the oxidized material and the control are diluted with water to 10 ml. Colorimetry against the control is done in cuvettes with a yellow light filter in a photoelectric colorimeter (optimum wavelength 580-600 mμ). The entire procedure, except for the time to prepare the samples for analysis, takes no more than 1-1½ hours.
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1/2 007 UNCLASSIFIED PROCESSING DATE--090CT70

TITLE--COLORIMETRY OF DRY WEIGHT OF BACTERIAL CULTURES, APPLICABILITY OF COLORIMETRIC METHOD OF DETERMINATION OF DRY RESIDUE FOR ANLYSIS OF

AUTHOR-(03)-CHALENKO, V.G., RUMYANTSEV, S.N., VOLODINA, I.K.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970 NR 3, PP 45-50

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TYPHOID FEVER CULTURE METHOD, COLORIMETRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/1466 STEP NO--UR/0016/70/000/003/0045/0050

CIRC ACCESSION NO--AP0109526

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--090CT70

2/2 007
CIRC ACCESSION NO--AP0109526
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE EXAMPLE OF TYPHOID CULTURES THE AUTHORS DEMONSTRATED THE POSSIBILITY OF USING COLORIMETRIC METHOD OF DETERMINATION OF DRY WEIGHT FOR ANALYSIS OF BACTERIAL POPULATIONS. IN THE SUGGESTED MODIFICATION THE METHOD IS CHARACTERIZED BY HIGH SENSITIVITY AND PRECISION, ADEQUATE REPRODUCIBILITY; IT IS ALSO WELL COMPARABLE WITH THE DRY HEAT METHOD. WIDE APPLICATION OF THE METHOD IN EXPERIMENTAL AND TECHNICAL MICROBIOLOGY IS RECOMMENDED.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--STABILIZATION OF THE DIMENSIONS OF THE ORIENTED ZONE DURING POLYMER DRAWING -U-

AUTHOR-(03)-KOVRIGA, V.V., LEBEDINSKAYA, M.L., CHALIDZE, V.N.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 34-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PLASTIC INJECTION MOLDING, CAPRONE, TENSILE STRENGTH, MATERIAL TESTING EQUIPMENT, MATERIAL DEFORMATION, MATERIAL DEGRADATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1822 STEP NO--UR/0191/70/000/002/0034/0035

CIRC ACCESSION NO--AP0112806

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112806

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KAPRON (I) SAMPLES (OBTAINED BY INJECTION MOLDING) WERE DRAWN ON A. ZWICK TENSILE TESTING MACHINE AT 5-500 MM PER MIN (AT 23-40DEGREES) UNTIL A REINFORCED REGION WAS FORMED. THE TESTS WERE DESIGNED TO DET. THE RELATION BETWEEN THE GEOMETRICAL PARAMETERS OF THE TRANSITIONAL REGION AND THE DRAWING CONDITIONS OF I. THE DEFORMATION IN THE TRANSITIONAL REGION BECAME CONST. AT A DRAWING RATE OF GREATER THAN OR EQUAL TO 40 MM PER SEC. AT HIGH DRAWING RATES, THE DEGREE OF DRAWING BECAME ESSENTIALLY CONST., BUT I FIBERS UNDERWENT A MARKEDLY MORE RAPID DEGRADATION.

UNCLASSIFIED

USSR

UDC 669.71.053.4(088.8)

BAZHENOV, A. YE., CHECHUKHIN, N. V., OSOKINA, V. K., PAL'CHIKOVA, A. I., PAL'CHIKOVA, T. A., TARASOV, I. A., FEDORISOV, V. D., CHALIK, A. D., CHERNOV, V. Ye

"Method of Obtaining Cryolite"

USSR Author's Certificate No 312834, filed 3 Mar 70, published 15 Oct 71 (from RZh--Metallurgiya, No 4, Apr 72, Abstract No 4G179P)

Translation: The procedure for obtaining cryolite by roasting the slurry at 700-800° formed as a result of wet removal of the gases in aluminum production is distinguished by the fact that in order to improve the quality of the product, the roasted slurry is subjected to water treatment at 35-40° with a L:S ratio of 5-10: 1 with subsequent leaching out of the precipitate by a 2-10% solution of HF at 55-75° with a L:S ratio of 3-10:1. An example is presented.

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USSR

UDC 669.71:621.035

TOVSTENKO, A. F., CHALIK, S. M., GORELIK, A. Ya., LITVINOV, Ye. V., SVERDLIN, V. A.

"Study of New Types of Raw Materials for the Production of the Anode Mass"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp. 10-20. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G155 by the authors).

Translation: A description is presented of various carbon materials used in the production of anode mass. The task of their classification is stated. The stages in the development of the production of raw materials in the USSR and its study at the All-Union Institute for Aluminum, Magnesium and Electrode Industry are studied. The types of cokes and pitches studied are listed and briefly described, and their promise for utilization is estimated. A bibliography of published works performed by the Institute together with other institutions on the investigation of carbon-based raw material is presented.

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USSR

UDC 669.71:621.035

SVOBODA, R. V., VEDERNIKOV, G. F., CHALIK, S. M.

"Improvement of the Technological Process for Producing the Anode Mass and Improving its Quality"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 21-28 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G215)

Translation: On the basis of generalizing the operating experience of the Soviet aluminum industry in recent years, an analysis is presented of the results of introducing the technological process of firing the coke filler at reduced temperature, with consolidated granulometric composition of the dry charge and petroleum coke from the retarded coking units in anode mass production. Reducing the firing temperature of the coke permitted its losses during calcination to be reduced by 1.0-1.5%, which, just as consolidating the granulometric composition, led to improved operating properties of the anode mass. The basic areas of further improvement of the anode mass quality by introducing pitch with a high softening temperature and automation of the production process are demonstrated. There are 3 tables.

1/1

USSR

UDC: 611.774.3

AFANAS'YEVA, A. K., KOZLOVSKAYA, V. P., CHALIKOV, V. V.

"Study of the Structure and Properties of Drilling Pipe of Aluminum Alloys Produced by Rolling"

Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 3, 1973, pp 120-126.

Abstract: Results are presented from a study of the influence of the temperature and deformation mode of the rolling process on the structure and properties of pipe of various aluminum alloys with periodically changing cross section. Small diameter pipe was studied, produced by rolling by hot-pressed blank. Pipe made of aluminum alloys D16 and 01953 by rolling, a new, highly productive method, satisfies the requirements of the technical conditions for pressed drilling pipe. The rolled pipes have the following advantages over pressed pipe: lower anisotropy of mechanical properties, double the endurance limit of the transition zone with sign-changing load, and higher corrosion-wear resistance. Rolled drilling pipe should be used in prospecting drilling, where the influence of corrosive media is not a decisive influence due to the brief cycle of use.

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Analysis and Testing

USSR

UDC 546.87:543.42

CHALKOV, N. Ya., and USTIMOV, A. M., Chimkent Lead Factory

"Chemical Spectral Determination of Impurities in Pure Bismuth"

Moscow, Zavodskaya Laboratoriya, No 2, 1971, pp 149-150

Abstract: A chemical spectral method for the determination of Al, Co, Cd, Ca, Cu, Fe, In, Ga, Mg, Mn, Ni, Ti, and Zn in bismuth with a sensitivity of 1×10^{-7} — 1×10^{-5}% has been developed. The concentration of impurities with a coefficient of 100—250 is attained by separation of the basic bismuth mass by its precipitation in the form of the basic bromide. The variation coefficient varies from 15% to 30%.

1/1

UDC 621.391:519.2

USSR

CHALOV, V. K.

"The Effect of Cadence Synchronization Errors on the Noise-Proof Feature of the Quasi-Optimal Reception of Binary Radio Signals"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1969, Vol 188, pp 102-110 (from RZh-Radiotekhnika, No 4, 1970, Abstract No 4A63)

Translation: The author studies a decrease in the noise-proof feature associated with the reception of binary signals where the decrease is due to errors in determining the reception time of the signal τ_0. It is assumed for the sake of simplicity that both the modulation law and the ω_0 and φ_0 signal parameters are known precisely. Only five signals have been analyzed: the amplitude modulation signal with a passive pause; the frequency modulation and phase modulation signals; and signals with relative phase modulation under conditions of coherent and non-coherent reception. The relative decrease in the noise-proof feature of the reception of these signals can differ by a factor 1/1 of four. Original article: 4 bibliographic entries. L.S.

1/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--ESTIMATING THE NOISE IMMUNITY OF QUASI COHERENT NARROW BAND BINARY SIGNAL RECEPTION -U-

AUTHOR--CHALOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--KIEV, IZVESTIYA VUZOV SSSR RADIOELEKTRONIKA, VOL 13, NO 2, 1970, PP 222-229

DATE PUBLISHED--------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., NAVIGATION

TOPIC TAGS--ELECTROMAGNETIC NOISE, COHERENT SIGNAL, CARRIER FREQUENCY, SIGNAL RECEPTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1991/1460 STEP NO--UR/0452/70/013/002/0222/0229

CIRC ACCESSION NO--AP0110948

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0110948

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER CONSIDERS THE CASE IN WHICH THE MODULATION PARAMETERS, THE VALUE OF THE CARRIER FREQUENCY, AND THE TIME OF ARRIVAL OF THE SIGNAL ARE PRECISELY KNOWN. THE BLOCK DIAGRAM OF THE QUASI COHERENT RECEIVER IS SHOWN. IT IS MEANT FOR AN ARBITRARY SIGNAL ON THE CONDITION THAT THE WIDTH OF THE SIGNAL SPECTRUM IS MUCH LESS THAN THE CENTER FREQUENCY. THIS ARRANGEMENT IS CONSIDERABLY SIMPLIFIED FOR SOME SIGNALS, FM, FOR EXAMPLE. TO SIMPLIFY THE ANALYSIS, THE CASE IS CONSIDERED IN WHICH THE SYNCHRONIZATION SIGNALS ARE TRANSMITTED ON A SEPARATE CHANNEL, BUT ON THE PRINCIPLE THAT THE RECEPTION CAN BE INVESTIGATED WITH THE SYNCHRONIZATION SIGNALS EXTRACTED FROM THE INFORMATION SIGNALS. THIS PAPER ANALYZES A BROADER CLASS OF SIGNALS THAN EARLIER WORKS ON THE SAME SUBJECT; DEALING SPECIFICALLY WITH THE RECEPTION OF FLUCTUATING SIGNALS, IT SHOWS THAT UNDER CERTAIN CONDITIONS, THE PROBABILITY OF INCORRECT SIGNAL RECEPTION MAY BE EXPRESSED BY MEANS OF TABULATED FUNCTIONS.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002200520010-9"

USSR

UDC 621.391.8

CHALOV, V. K.

"Estimating the Noise Immunity of Quasi-Coherent Narrow-Band Binary Signal Reception"

Kiev, Izvestiya VUZov SSSR-Radioelektronika, Vol 13, No 2, 1970, pp 222-229

Abstract: This paper considers the case in which the modulation parameters, the value of the carrier frequency, and the time of arrival of the signal are precisely known. The block diagram of the quasi-coherent receiver is shown. It is meant for an arbitrary signal on the condition that the width of the signal spectrum is much less than the center frequency. This arrangement is considerably simplified for some signals -- FM, for example. To simplify the analysis, the case is considered in which the synchronization signals are transmitted on a separate channel, but on the principle that the reception can be investigated with the synchronization signals extracted from the information signals. This paper analyzes a broader class of signals than earlier works on the same subject; dealing specifically with the reception of fluctuating signals, it shows that under certain conditions, the probability of incorrect signal reception may be expressed by means of tabulated functions.
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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CHEMICAL STRUCTURE OF THE ANTIBIOTIC ALBOMYCIN. XXVI. SYNTHESIS OF ALPHA,TRIPEPTIDES OF L AND D,GLUTAMIC ACID AND THE TETRAMETHYL ESTER OF
AUTHOR-(03)-PODDUBNAYA, N.A., BAZAITOVA, L.V., CHALOVA, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(2), 487-91

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TERPENE, GLUTAMIC ACID, ALIPHATIC ESTER, PEPTIDE, SERINE, MOLECULAR STRUCTURE, ANTIBIOTIC/(U)ALBOMYCIN ANTIBIOTIC

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1157 STEP NO--UR/0079/70/040/002/0487/0491

CIRC ACCESSION NO--AP0123135

UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0123135
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DL,GLUTAMIC ACID WAS CONVERTED BY ACYLASE I INTO PURE D,ISOMER AS SHOWN ON MICROFICHE. THESE WERE USED TO PREPD. THE FOLLOWING PEPTIDES: (SHOWN ON MICROFICHE). THE L,D,D,ANALOG TREATED WITH AQ. MEOH-NAOH 1 HR AT ROOM TEMP. GAVE 20PERCENT L,GLUTAMYL,D,GLUTAMYL,D,GLUTAMIC ACID, AN OIL; D,D,L,ANALOG, 15PERCENT, OIL. ME ESTER OF N,CARBOBENZOXY,D,SERYL,D, SERYL,D,SERINE AND N SUB2 H SUB4 IN MEOH 1 DAY GAVE THE HYDRAZIDE, M. 202DEGREES, WHICH IN AQ. ACOH-HCL AT MINUS 10DEGREES TREATED WITH NANO SUB2. EXTD. WITH ETOAC AND THE CRUDE PRODUCT TREATED WITH II IN THE PRESENCE OF ET SUB3 N GAVE 42PERCENT OILY TETRA,ME ESTER OF N,CARBOBENZOXY, D,SERYL,D,SERYL,SERYL,ALPHA PRIME, L,GLUTAMYL,ALPHA PRIME D,GLUTAMYL,D,GLUTAMIC ACID, (ALPHA)PRIME20 SUBD MINUS 9.6DEGREES.
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR UDC 621.039.574.5

TERENT'YEV, V. P., ZHARKOV, V. A., FRADKIN, G. M., and CHAVY-CHALOVA, T. P.

"Optimal Irradiation Modes in Isotope Production"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 260-264

Abstract: In response to the need for developing economically favorable modes for obtaining radioisotope energy through irradiation, the authors use as the criterion for such modes minimum expense for obtaining the required isotope and the maximum value of energy output. In this process, a fairly stable initial isotope is bombarded by neutrons to form an intermediate isotope, which quickly decays to form the energy-producing result. The authors write an equation for the expense incurred in obtaining one gram-atom of the fuel isotope, and three equations for the irradiation expense which apply in most practically important cases. They also find an equation for determining the required irradiation duration. Curves are plotted for the optimal output of the original and fuel isotopes under neutron irradiation, and a table of various isotopes and corresponding parameters for optimal irradiation modes is reproduced.

1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF AMINO ALCOHOLS AND AMINES ON THE KINETICS OF VINYL ACETATE PHOTOPOLYMERIZATION. II. INFLUENCE OF DIETHYLAMINOETHANOL IN THE

AUTHOR-(03)-CHALTYKYAN, O.A., MELKONYAN, R.G., BELLERYAN, N M.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(2), 119-23

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AMINO ALCOHOL, AMINE, PHOTOPOLYMERIZATION, POLYVINYL ACETATE, ETHANOL, METHANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1772 STEP NO--UR/0426/70/023/002/0119/0123

CIRC ACCESSION NO--AP0123569

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0123569
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTOPOLYMN. RATE (W) OF H SUB2 C:CHOAC (I) INCREASES WITH THE CONCN. OF THE ADDED EF SUB2 NCH SUB2 CH SUB2 OH (II) IN A NON LINEAR FASHION. WHEN MEOH IS ALSO ADDED TO I, W CHANGES LINEARLY WITH II CONCN. II, BESIDES INCREASING W, ACTS AS THE CHAIN TRANSFER AGENT. THE CHAIN TRANSFER CONST. (KAPPA) DEPENDENCE ON THE TEMP. IS EXPRESSED BY KAPPA EQUALS AEXP(MINUS 15200-RT), WHERE A IS 7.8 TIMES 10 PRIME11 WHEN BOTH II AND MEOH ARE PRESENT; A IS 5.3 TIMES 10 PRIME NEGATIVE11 WHEN ONLY II IS PRESENT. FACILITY: EREVAN. GOS. UNIV., EREVAN, USSR.

UNCLASSIFIED

Polymers and Polymerization

USSR

UDC 541.15

KABANOV, V. YA., CHALYKH, A. YE., ALIYEV, R. E., LUK'YANOVICH, V. M., and SPITSYN, V. I., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Electron Microscope Study of Charge Centers in γ -Irradiated Polymers"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 2, 1972, pp 393-395

Abstract: Investigation of the charge on polymers as a function of radiation was performed. The IR spectra of the unirradiated polyethlene films show no evidence of polarized acid groups. Samples were irradiated for about 0.5 minutes at 30 rads/sec from a Co^{60} source. The irradiation produced surface patterns on the films which were then studied under the electron microscope. Fourteen of the electron micrographs are reproduced in the article. Surface patterns were not obtained on the surfaces when the plastics were treated in the form of metal organosols. The charged centers retain their charge when the films are submerged in a medium with a high dielectric constant, such as water. Thus the charged centers are fixed and the topography of particular distributions which is significant in studying the effects of radiation is preserved.

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USSR

UDC 541.6:541.12

YANOVA, L. P., BLYSKOSH, G. S., CHIGISHOVA, A. M., TAUBMAN, A. B., CHALYKH, A. Ye., and LUK'YANOVICH, V. M., Institute of Physical Chemistry, USSR Academy of Sciences, Moscow

"Mechanical and Chemical Grafting of Polymers on the Surface of Ionic Crystals"

Moscow, Kolloidnyy Zhurnal, Vol XXXIII, No 1, Jan-Feb 1971, pp 171-172

Abstract: It was previously established by several of the authors that grafting of polymers on a crystal surface is not uniformly distributed, but appears at localized centers. The present study was undertaken to determine the character of this localization.

Vacuum-dried (3 hrs., elevated temperature) rock salt and calcite crystals were submerged in a monomer, then split, to secure a fresh surface. Intensity of electron emission was measured.

Electron microscope photographs confirmed the localization of polymer grafting; length of stay in the monomer had no effect on the progress of grafting. It is concluded that successful grafting is dependent not on the bond strength of the ionic crystal, but rather on the formation of radicals and on the ionization of defects and the rise of free electron emission, appearing at the time of splitting.

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1/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ELECTRON MICROSCOPIC METHOD FOR INVESTIGATION OF DISPERSE SYSTEMS WITH LIQUID PHASES -U-

AUTHOR-(05)-KILPAKOV, L.V., NIKITINA, S.A., TAUBMAN, A.B., SPIRIDONOVA, V.A., CHALYKH, A.YE.

COUNTRY OF INFO--USSR

SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 2, PP 229-231

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--ELECTRON MICROSCOPY, PROTECTIVE COATING, PHYSICS LABORATORY INSTRUMENT, EMULSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1720 STEP NO--UR/0069/70/032/002/0229/0231

CIRC ACCESSION NO--AP0112714

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112714

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DEVICE HAS BEEN DESIGNED AND A TECHNIQUE DEVELOPED FOR ELECTRON MICROSCOPIC STUDY OF LIQUID SYSTEMS: EMULSIONS AND LATICES. BY MEANS OF THIS METHOD ELECTRON PHOTOMICROGRAPHS HAVE BEEN OBTAINED OF STRUCTURIZED PROTECTIVE FILMS FROM MICROEMULSIONS STABILIZING THE MACROEMULSIONS OF PURE LIQUEDS. IT HAS BEEN SHOWN THAT ELECTRON PHOTOMICROGRAPHS OF LATICES CAN BE OBTAINED IN THE CASE OF INCOMPLETE MONOMER CONVERSION.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECT OF THE STRUCTURE OF POLY(VINYL CHLORIDE) ON THE RATE OF DIFFUSION OF A PLASTICIZER -U-

AUTHOR-(04)-KOROBKO, V.I., CHALYKH, A.YE., VASENIN, R.M., LUKYANOVICH, V.M.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (2), 41-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MOLECULAR STRUCTURE, POLYVINYL CHLORIDE, PHYSICAL DIFFUSION, PLASTICIZER, ACTIVATION ENERGY, THERMAL EFFECT/(U)S5 POLYVINYL CHLORIDE, (U)S60 POLYVINYL CHLORIDE, (U)S75 POLYVINYL CHLORIDE, (U)L7 POLYVINYL CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1704 STEP NO--UR/0191/70/000/002/0041/0042

CIRC ACCESSION NO--AP0112698

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0112698

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DIFFUSION OF DI-BU PHTHALATE (I) INTO SEVERAL BRANDS OF POLY(VINYL CHLORIDE) (II) (THE MOL. WT. AND D. IN G-CM PRIME3 ARE GIVEN) E.G., S-5 (50,000, 1.403), S-60 (50,000, 1.412), S-75 (68,000, 1.415), AND L-7 (47,000, 1.408) WAS STUDIED BY AN OPTICAL METHOD (R. M. VASENIN, ET AL., 1965). THE EFFECTIVE DIFFUSION COEFF. (D) WAS A LINEAR FUNCTION OF 1-T FOR THE ENTIRE TEMP. RANGE. THE APPARENT ACTIVATION ENERGY OF DIFFUSION (E) FOR THE VARIOUS II BRANDS DECREASED IN THE ORDER E SUBS-5 SMALLER THAN E SUBL-7 SMALLER THAN E SUBS-60 SMALLER THAN E SUBS-75, WHEREAS D OBEYED THE ORDER: D SUBS-5 GREATER THAN D SUBL-7 GREATER THAN D SUBS-60 GREATER THAN D SUBS-75. S-75 GLOBULES WERE ELONGATED AND RESEMBLED A FIBRILLAR SUPRAMOL. STRUCTURE, WHICH MADE ITS PACKING D. CONSIDERABLY HIGHER THAN THAT OF OTHER BRANDS, AND CONSEQUENTLY, S-75 EXERTED GREATER RESISTANCE TO THE PENETRATION OF I.

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USSR

BUTYRIN, G. M., et al., Khimiya Tverdogo Topliva, No 1, Jan/Feb 71, pp 131-146

porous, and extremely porous varieties. On the basis of the movement of gases in a real, porous graphite structure, they are conveniently subdivided into Folmerov, Knudsen, transition, and Poselle (the latter with the subgroup of macropores) pores. A relationship was found between the method of formation of a "green" intermediate product and the character of the specific volume distribution of the pores with respect to the dimensions. It was established that the existence of a significant volume of macropores is characteristic only for pierced graphites, whereas their absolute volume depends on the granulometry of the original batch, which is determined by the dimensions of the forming intermediate products. Impregnation or compacting will preserve the character of the porous structure of the original material. It was established that compacting prior to impregnation is preferred for these artificial graphites because it reduces the subsequent preparation time and improves the properties of the material.

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USSR UDC 615.37:576.8-097.5

PROKOPENKO, L. G. and CHALYY, G. A., Kursk Medical Institute

"Effect of 7S Antibodies on the Primary and Secondary Immune Responses"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 12, 1971, pp 45-50

Abstract: Experiments were performed on 92 rabbits immunized with sheep erythrocytes or human serum proteins to study the effect of 7S antiserum antibody formation after the first and second inoculations of antigen. Injection of antiserum simultaneously with the antigen reduced the intensity of formation of 19 S antibodies and slowed the accumulation of 7S antibodies. However, when the antigen was given 20 days before the inital injection of 7S antiberum, the latter stimulated the formation of 19S and 7S antibodies. Both the inhibitory and stimulatory effects of the antiserum were antigen-specific. An immunestimulatory effect could be produced by administering low doses of antiserum simultaneously with the initial injection of antigen. Injection of 7S antiserum simultaneously with the second injection of antigen 10 days after the inital immunization had no effect on the total titers but inhibited the formation of 7S antibodies. When the second immunization was Carried out 20 days after the first, the intensity of antibody formation was not affected, but the formation of 19S and 7S antibodies was somwhat prolonged.
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USSR

UDC 621.372.061

CHALYY, V. D., YATSENKO, Yu. I.

"Selecting Optimal Parameters of Some Transistor Circuits"

Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radioelectronic Equipment, No 1), Moscow, 1970, pp 65-71 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A115)

Translation: This article contains an investigation of application of the methods of factor experimentation based on regression analysis for optimization of multidimensional linear and nonlinear stationary circuits. The procedure permits us to obtain a system of equations describing the optimal conditions of the circuit and nomograms for selecting the optimal parameters. There are two illustrations, two tables and a two-entry bibliography.

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